DOCUMENT RESUME

ED 350 579 CS 011 060

AUTHOR Dunning, David B.
TITLE Instructional Questions That Clarify Story Characters' Feelings and Motivations: Their Effect on Students' Narrative Comprehension.
INSTITUTION Center for the Study of Reading, Urbana, IL.
REPORT NO CSR-TR-563
PUB DATE Oct 92
NOTE 30p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Grade 3; Inferences; *Instructional Effectiveness; Narration; Primary Education; *Reading Comprehension; *Reading Instruction; Reading Research; Story Reading
IDENTIFIERS Questions

ABSTRACT

A study investigated whether classroom reading instruction that focuses students' attention on story characters' motives and feelings improves their narrative comprehension. The subjects for this study were 48 third-grade students from 3 different classrooms in the same school. Two different treatments were used: the External Events (control) treatment, which highlights the relative order of the observable, external events of the story, and the Internal States (experimental) treatment, which clarifies story characters' feelings and motivations. Significant results, favoring the Internal States group, were found in analyses for two of the dependent measures taken on new uninstructed stories: a holistic quality rating of the students' retellings and their responses to an oral probe question assessing their knowledge of the story's central problem. Results suggest that young readers' story understanding is facilitated when their reading instruction centers on clarifying story characters' internal states. (Six tables of data are included and 31 references are attached.) (Author)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED350579

Technical Report No. 563

INSTRUCTIONAL QUESTIONS THAT CLARIFY STORY CHARACTERS' FEELINGS AND MOTIVATIONS: THEIR EFFECT ON STUDENTS' NARRATIVE COMPREHENSION

David B. Dunning
Portland State University

October 1992

Center for the Study of Reading

TECHNICAL REPORTS

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Fran Lehr

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

College of Education
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN
174 Children's Research Center
51 Gerty Drive
Champaign, Illinois 61820

CS011060

BEST COPY AVAILABLE

CENTER FOR THE STUDY OF READING

Technical Report No. 563

INSTRUCTIONAL QUESTIONS THAT CLARIFY STORY CHARACTERS' FEELINGS AND MOTIVATIONS: THEIR EFFECT ON STUDENTS' NARRATIVE COMPREHENSION

David B. Dunning
Portland State University

October 1992

College of Education
University of Illinois at Urbana-Champaign
174 Children's Research Center
51 Gerty Drive
Champaign, Illinois 61820

1991-92 Editorial Advisory Board

James Armstrong

Diana Beck

Stacy Birch

Diane Bottomley

Clark A. Chinn

Judith Davidson

Irene-Anna N. Diakidoy

Colleen P. Gilrane

Barbara J. Hancin-Bhatt

Richard Henne

Carole Janisch

Bonnie M. Kerr

Raymond Langley

Jane Montes

Marty Waggoner

Janelle Weinzierl

Hwajin Yi

MANAGING EDITOR
Fran Lehr

MANUSCRIPT PRODUCTION ASSISTANT
Delores Plowman

Abstract

A study investigated whether classroom reading instruction that focuses students' attention on story characters' motives and feelings improves their narrative comprehension. The subjects for this study were 48 third-grade students from three different classrooms in the same school. Two different treatments were used: the External Events (control) treatment, which highlights the relative order of the observable, external events of the story, and the Internal States (experimental) treatment, which clarifies story characters' feelings and motivations. Significant results, favoring the Internal States group, were found in analyses for two of the dependent measures taken on new uninstructed stories: a holistic quality rating of the students' retellings and their responses to an oral probe question assessing their knowledge of the story's central problem. Results suggest that young readers' story understanding is facilitated when their reading instruction centers on clarifying story characters' internal states.

INSTRUCTIONAL QUESTIONS THAT CLARIFY STORY CHARACTERS' FEELINGS AND MOTIVATIONS: THEIR EFFECT ON STUDENTS' NARRATIVE COMPREHENSION

Narrative comprehension involves more than merely remembering the various events in a story. It also requires an understanding of the links that tie those events together (Trabasso, Secco, & van den Broek, 1984). And typically for stories, these links are themselves part of a chain of psychological causality that includes not only the external events but also the story characters' internal states--their feelings, dispositions, and intentions--which motivate, as well as explain, many of these external events (McConaughy, 1985).

Some researchers have argued that this chain of psychological causality forms the core of a relatively more complex type of story schema--the social inference schema--which guides how most older and more mature readers interpret and understand stories. By contrast, younger and less able readers are often found to employ a more limiting causal inference story schema that is based on a model of physical causality that focuses only on the sequence of events and actions in a story without considering why they occurred (McConaughy, 1985; McConaughy, Fitzhenry-Coor, & Howell, 1983).

Given how important an understanding of internal states can be to maturing readers' story comprehension, then, it is important that the connections between characters' actions and their underlying feelings and motives be clear for young readers (Hall & Nagy, 1981; Lichtenstein & Brewer, 1980)--whether it be by virtue of (a) the clarity of the writing in the story selections themselves, (b) children's ability for making inferences about story character motivations, or (c) the nature and quality of their teachers' instruction.

With regard to the first condition, the clarity of writing, young readers, for the most part, are relatively adept at handling stories that contain explicit information about character motives and intentions (Shannon, Kameenui, & Baumann, 1988). Unfortunately, many of the narrative selections contained in the more popular basal series do *not* make these connections explicit, especially at the primary level. Bruce (1984), for example, when examining a cross-section of basal reader story selections for the presence of inside view--the extent to which an author clearly presents the thoughts, feelings, and values of story character in the narrative--discovered that, when compared to quality trade books, the primary-level basal stories contained very little inside view. Similarly, when comparing an original story with its adaptation for a third-grade basal reader, Liebling (1986) found that much of the material that readers would ordinarily use to interpret story character behavior was left out of the basal adaptation.

In addition, when analyzing a selection of third- and fourth-grade basal stories for the presence of internal state words (e.g., *think, remember, afraid, happy, want,* and *wish*), which refer primarily to internal states, processes, or experiences (Hall, Nagy, & Nottenburg, 1981)--Dunning (1990) determined that some of these stories contained two to three times as many internal state words as others. Interestingly, the selection containing the fewest number of internal state words per page was written by the highly regarded author Laura Ingalls Wilder. The fact that basal series with copyrights more recent than those analyzed by Bruce (1984) include more award-winning children's literature (Comas, 1987), is by itself, insufficient evidence that the newer basal selections include a higher degree of inside view. Young readers, therefore, whether reading basal selections by famous authors or by "in-house" writers, often find themselves in the position of having to infer story characters' internal states on their own without support from the text.

With regard to the second condition, if as a rule, young readers were good at making inferences about story characters' internal states, there would be no problem. Unfortunately, much of the research investigating children's ability for making inferences about character motives indicates that they are just

not very good at this task (Berndt & Berndt, 1975; Grueneich & Trabasso, 1981; McConaughy, 1985; Wallace, 1984).

For example, in a study investigating elementary school age children's ability to recall information about character motives, Shannon et al. (1988) found that students remembered the story characters' actions far better than they remembered their motives.

In addition, in a study investigating the ability of second- and third-grade students to make inferences about story characters' motivations, Wallace (1984) reported that, compared to other types of inferences (e.g., those involving physical causality), motivational inferences proved to be relatively difficult for primary-age children. After reading two 400-word stories, the students were asked questions about the story character's goals, thoughts, and actions. They answered only 49% of these questions correctly (vs. 70% correct for the other types of inference questions).

Further evidence of the difficulty that motivational inferences pose for young children is provided in a study comparing 6- and 12-year-olds' reactions to filmed episodes. In this study, Flapan (1968) found that the younger children had more trouble accurately determining the thoughts and feelings of the film characters when they were not clearly represented in the dialogue.

The conclusion to be drawn from these studies is clear. Young children are not very proficient at making inferences about story characters' motivations: consequently, given the low level of inside view contained in most primary-level basal selections, they need instructional support for making appropriate inferences about story characters' internal states.

The instructional support that students receive in the elementary grades is typically in the form of teacher-posed questions that accompany the reading of a story selection. However, observational research has demonstrated that a large percentage of these questions tend to be of the literal recall type (Guszak, 1967; O'Flahavan, Hartman, & Pearson, 1988; Shake & Allington, 1985). Given that students are best at answering the types of questions they are most often asked during instruction (Wixson, 1983), it appears that primary-level students are currently *not* receiving the appropriate instructional support for understanding the stories they read.

Inference Questions

Instructional studies investigating the effects of teacher-posed inferential questions have demonstrated that a steady diet of inference questions, on the other hand, can improve young readers' story comprehension (Hansen, 1981; Hansen & Pearson, 1983). Moreover, teacher-posed inference questions specifically crafted to explore character motives have proved to be successful in improving students' story comprehension in one-on-one instructional situations (Carnine, Stevens, Clements, & Kameenui, 1982; Sundbye, 1987). Examples of both types of studies--those investigating general narrative inferencing ability and those investigating motivational inferencing ability--will be briefly reviewed in the following two sections.

Narrative inferences. In a study exploring the effects of different types of inference training on the narrative comprehension of second-grade students, Hansen (1981) found that practice in answering inference questions was equally effective to the other experimental treatment, a prereading prediction strategy. Daily measures on the instructed stories revealed significant treatment effects favoring both experimental groups over the control group, which received a typical basal approach. Transfer effects--as measured by retellings and probe questions for new uninstructed stories at the end of the study--were very weak, however. The results for the posttest probe questions were only marginally in favor of the practice group, and no significant differences existed among the three groups on the retellings.

Similarly, in a study investigating the efficacy of asking third-grade students discussion questions about implicit central story information, Fielding, Anderson, and Pearson (1990) reported only a nonsignificant trend supporting the experimental strategy on the daily measures taken on instructed stories and no transfer effects for new uninstructed stories.

In a study investigating the effects of redesigning reading lessons for third-grade students, Beck, Omanson, and McKeown (1982) demonstrated that a basal reading lesson that both provided relevant background knowledge and highlighted central story content had a facilitating effect on the reading comprehension of students when contrasted with the effect of an unmodified basal lesson. Unfortunately, the amount of work that went into revising the basal lesson plan was rather extensive and certainly not what could be expected of a typical classroom teacher on a regular basis. In addition, the average classroom teacher cannot be expected to present story lessons individually to each student as was done in this study.

In an instructional study designed to improve fourth-grade students' narrative inferencing ability, Hansen and Pearson (1983) combined the practice and strategy experimental treatment conditions from the Hansen (1981) study. Students in the experimental condition were provided with many inferential questions to guide their postreading discussion and, in addition, were also given regular encouragement to draw inferences between new and old information. Similar to the Beck et al. (1982) study, there was an aptitude-by-treatment interaction that indicated that the treatment benefitted the poor readers more than the good readers.

Motivational inferences. In an instructional study aimed at teaching intermediate-grade children how to recognize character motive in stories, Carnine et al. (1982) discovered that a relatively simple practice-with-feedback strategy achieved results as successful as a much more elaborate instructional package. Correcting a child's incorrect answer with a response that began, "The real reason why this character acted this way was because . . . " was the central instructional component of this fairly straightforward strategy. That a fairly simple instructional procedure can have an effect as strong as a more complicated one is an encouraging finding.

Less encouraging, however, are the study's limitations (thoughtfully acknowledged by its authors), which prevent its findings from being generalized beyond either its rather restricted subject pool or its one-on-one training methods. The subjects selected for the Carnine et al. (1982) study included only those students who had previously demonstrated difficulty in identifying character motive, and therefore the subject range was confined to those most likely to benefit from instruction. In addition, similar to Beck et al. (1982), the one-on-one structure of the training sessions provided a much more intensive experience for the student than did group instruction and certainly does not reflect the typical instructional organization found in most elementary school classrooms.

One particularly powerful feature of the Carnine et al. (1982) study was that, unlike the Beck et al. (1982) study, the dependent measures were administered on new uninstructed stories. Transfer of instructional effects were clearly demonstrated for the Carnine et al. study.

In a study examining the effects of text explicitness and inference questioning on the story understanding of third-grade students, Sundbye (1987) found that each of these instructional design features had a positive effect on children's knowledge of both central events and goal structures as evidenced in their responses to probe questions. Interestingly enough, as in the Hansen (1981) study, there were no main effects for retellings, only for answers to questions. Once again, as with the Carnine et al. (1982) and the Beck et al. (1982) studies, the instruction was presented to each student individually, therefore limiting the generalizability of this study's results for classroom group instruction.

In summary, then, the design features and findings of several of the reviewed studies have implications for the design of the present study. Among them are the following (the first three being the most

BEST COPY AVAILABLE

important): (a) instruction should be by group rather than by individual so as to increase the ecological validity of the study; (b) the instructional procedure should be kept fairly simple so as to increase the likelihood of its being adopted by already overworked classroom teachers; (c) new uninstructed stories should be used at the posttest stage to test for the transfer of treatment effects; (d) delayed posttests should be used to check for the persistence of treatment effects over time; (e) subjects selected for the study should represent a range of ability levels in order to capture any aptitude-by-treatment interaction effects that may be present; (f) both retellings and probe questions should be employed as dependent measures to explore the apparent greater sensitivity of probe questions to treatment differences in studies of this type; and (g) given that the greater sensitivity of probe questions to treatment differences might be due to the way in which retellings are scored, a holistic analysis of retellings should also be conducted--in addition to the more traditional proposition counting approach.

A summary of the problem this study seeks to address, then, is as follows: Young readers, even those who are good decoders, are often not very good at making inferences about story characters' feelings and motivations (Shannon et al., 1988; Wallace, 1984). Given how important an understanding of these internal states is to a reader's story comprehension (Lichtenstein & Brewer, 1980; McConaughy, 1985), it is imperative that the connections between the actions and underlying motives and feelings of story characters be made explicit for young readers either by the clarity of the writing in the story selections themselves or by virtue of the teacher's instruction. Unfortunately, many of the narrative selections contained in the more popular basal series do not make these connections explicit (Bruce, 1984). It is up to the teacher, therefore, to provide instruction that increases children's ability to make inferences independently about story characters' internal states.

The purpose of this study is to determine the efficacy of an instructional strategy designed to increase young readers' ability to independently make inferences about story characters' motives and feelings. In this study the Internal States strategy for clarifying characters' motives and feelings is compared to the External Events strategy, which, by contrast, focuses on the explicitly stated story events. The Internal States strategy is based on what McConaughy (1985) has termed a social inference schema, while the External Events strategy is based on a more restricted causal inference schema. The Internal States instruction consists of a series of inferential discussion questions probing story characters' feelings, the reasons for their feelings, and the reasons for their actions. The External Events instruction, on the other hand, is comprised of discussion questions clarifying the relative order of the story characters' actions without exploring the attendant internal states. These questions are largely literal recall questions, the most prevalent type of teacher question found in elementary classrooms (Guszak, 1967; O'Flahavan et al., 1988).

It should be noted that the discussion questions created for use with the Internal States group differ from treatment questions used in similar studies such as Carnine et al. (1982) and Sundbye (1987) in one important respect--in addition to questions about character motivations (plans and reasons for actions), the students in the Internal States group are also asked questions about the story characters' feelings and the reasons for their feelings.

An additional difference between the present study and the Carnine et al. (1982) and Sundbye (1987) studies is that instruction for the present study is conducted in a group setting, thereby increasing the generalizability of its results to the average classroom setting. The present study is similar to the Carnine et al. (1982) study, however, in that it is also designed to test for transfer effects with new uninstructed stories.

Finally, of the dependent measures created for use in this study, one group--the story information measures--was intended to register the quantity of information present, while the other set--the story quality measures--was intended to measure the quality of information present. Creating two such different sets of dependent measures enables the researcher to determine whether the two treatments have a qualitatively different impact on students' recall. For example, given its focus on the relative

order of story events, it could be that the External Events treatment would increase the number, but not the quality, of the story events recalled.

If it can be demonstrated that instruction aimed at improving primary-grade students' ability to make inferences about the motives and feelings of story characters facilitates their story comprehension, then the implications for instruction are clear: for readers to understand the actions in a story, they must understand the relationship of these actions to the internal states that accompany them.

Method

Subjects

Forty-eight third-grade students from an elementary school in a small midwestern city were selected to participate in this study. As a group, the students scored at the 75th percentile on the Reading Comprehension subtest of the SRA Survey of Basic Skills (Level 2.3, Form P). On the advice of the school principal, those students who were judged by their teachers as being even somewhat disruptive in their classroom behavior were eliminated from consideration. The remaining 16 students in each of the three classes involved were randomly assigned to either the experimental or the control condition. Altogether, six instructional groups of eight students each were formed--three control and three experimental. Each group met daily with the researcher over the course of the study.

Materials

Stories. The stories chosen for use in this study, whether for the purpose of instruction or for use as a dependent measure, were selected from third-grade basal series other than the one used in the subjects' school. No modifications were made to any of the stories other than the uniform deletion of all accompanying pictures.

Altogether, nine stories were used for the instructional phase of the study. They were chosen by the researcher, who is a former third-grade teacher, based on the quality of their story line, which was judged to be appropriate to third graders' interests.

The three uninstructed stories, on which dependent measures were taken, were also chosen for their good story lines, as validated by a reader interest survey administered to a group of third graders at a different school. These stories were also matched according to their readability rating as determined by the Fry Readability Scale. The uninstructed stories and their readability ratings are as follows: "Greyling" (Yolen, 1978) (4.0), "The Glittering Cloud" (Wilder, 1985) (3.9), and "Salt Boy" (Perrine, 1978) (4.7).

Instructional questions. For each instructed story two sets of discussion questions were created--one set for the External Events groups and the other for the Internal States groups. Each instructional condition had the same number of questions for every story, ranging from 12 to 20 in number depending on the length of the story. Moreover, for every question in the External Events instructional condition, there was a parallel question prepared for the Internal States condition probing the same point in the story. The information each probed for was, of course, different. For example, for the instructed story, "Payday" (Cleary, 1985), one of the External Events questions was, "What did Ramona put on her paper after she wrote 'One happy family'?" The parallel question created for the Internal States condition was, "Why do you think Ramona wrote 'One happy family' on her Christmas list?"

Reading strategy charts. Each instructional session began with a review of each treatment group's respective *secret* for better story understanding, which, from Day 5 on, was displayed on a researcher-made chart in the front of the room. The secret used by the External Events group reminded the

students that if they wanted to understand a story better, they should try to remember all the important events that happen in a story as well as the order in which they happen. The Internal States group rehearsed a secret that encouraged them to figure out the story characters' feelings and plans so that they would know why the characters do the things they do.

Dependent measures. Subjects' story comprehension was assessed using three different types of measures: free oral recall, probed oral recall, and probed written recall. The subjects' free oral recall was analyzed using two different scoring systems, thus yielding two different dependent measures for the retellings: (a) the number of story-pertinent idea units, and (b) an overall holistic rating. The subjects' probed oral recall and written answers to the written questions served as the other two dependent measures. Overall, then, there were four main dependent measures--idea units, holistic score, probe questions, and written answers--each of which was assessed at the pretest, posttest, and delayed posttest sessions on new uninstructed stories, and all of which, therefore, functioned as measures of transfer.

Because the idea units and written answers measures are essentially measures of the quantity of information recalled, they are referred to as "story information" measures. By contrast, the holistic score and the probe questions measures focused on the quality of information recalled and are thus referred to as "story quality" measures.

Daily measures were also collected for each of the nine instructed stories to monitor instructional effects. At the conclusion of a story, students from each treatment group were provided with a set of 12 written questions and asked to write answers for them.

The data collection sequence for this study was as follows: On the two days immediately preceding the study, a standardized reading test (the SRA Survey of Basic Skills) was administered to all the third graders in the school; on Day 2 of the study, the pretest measures were collected; and then, from Day 3 through Day 16, the instructional phase of the study was implemented, during which time the daily measures were collected. On Day 17, after 14 days of instruction, the first posttest measures were taken. Four weeks later, the delayed posttest measures were administered.

Procedure

Instruction. Each treatment condition had its own instructional focus. Instruction for the External Events group centered on reviewing the order of related story events, while instruction for the Internal States group focused on clarifying the reasons for the story characters' actions and feelings.

Each group received instruction in nine stories over the course of 14 days. The last day of instruction was reserved for a debriefing session in which the usefulness of each group's respective reading strategy was reviewed. The daily pattern of instruction was the same for each group and, with the exception of the strategy rehearsal portion, closely resembled the guided silent reading portion of a typical classroom basal reading lesson. The instructional sessions for both treatment conditions included strategy rehearsals, silent reading, and discussion. The researcher provided the instruction for all six instructional groups.

Testing. After each of the nine instructed stories had been read and discussed, a set of 12 written questions (the daily measures) was passed out to the students. Each set of 12 questions contained 4 questions taken from the discussion questions prepared for each of the treatment conditions, as well as 4 detail questions written specifically for this measure. For the story, "Payday," an example of one of the detail questions would be "What did Ramona's family have for dinner that night?" The students were encouraged to answer as many of the questions as they could and to try again if they were having trouble.

As previously mentioned, the primary function of the daily measures questions was to monitor instructional effects. In other words, it was expected that students from each treatment condition would perform better on those questions taken from their own instruction, assuming, of course, that the instruction was effective.

For the uninstructed stories--"Greyling," "The Glittering Cloud," and "Salt Boy"--there were three different testing times: pretest, posttest, and delayed posttest. When the students finished reading the uninstructed story, they would raise their hands and wait to be called on. When it was their turn, they would come sit by either the researcher or his assistant, away from the rest of the group, and tell everything they could remember about the story they had just read. When they stopped talking, neutral prompts were provided such as "What else happened?" "Tell me some more." or "What else do you remember?" Their responses were both audiotaped and transcribed.

Following the retellings, the students were asked a set of three probe questions, and their responses were again audiotaped and transcribed. Finally, the students were given a set of 15 written questions to answer at their seats and hand in when they were finished. Similar to the daily measures, this set of questions consisted of 5 questions sensitive to the External Events instruction, 5 questions sensitive to the Internal States instruction, and 5 detail questions that were intended to be neutral to the effects of either treatment.

Scoring

For each of the dependent measures based on the students' retellings or responses to oral probe questions, separate typed transcripts were produced for each of the students. The transcripts were then scored blind by the researcher. An assistant performed interrater reliabilities (reported at the end of this section).

For the idea units measure, the subjects' retellings were analyzed to determine the number of story-pertinent idea units present. In general, an idea unit was considered to be equivalent to a clause, as in the following example taken from a retelling for "Salt Boy": "The first time he did it / he was tending the sheep of his mother" (2 idea units). Because of the syntactic complexity as well as the maze-like quality of many of the students' responses, however, it was necessary to create a lengthy set of scoring rules to help the raters make judgments about where one idea unit stopped and another started.

The following, for instance, is one of the examples listed in the rules that demonstrates how kernel sentence subjects can be omitted in distinct idea units: "And then he saved the lamb by roping it / by wrapping it around the rope / and by pulling it in" (3 idea units).

The second measure applied to the retellings was the holistic score. Clean, unmarked copies of the students' retellings were evaluated on the basis of their overall effect--how well they covered the major points, how coherent they were, and ultimately, how well they seemed to demonstrate a "richness" of understanding.

The three probe questions were asked after the students had provided their retellings. The first assessed their knowledge of the main character's major goal; the second, their knowledge of the story's central problem; and the third, their awareness of how the problem was resolved. The three probe questions used for the uninstructed story "Salt Boy," for example, are as follows:

(a) In this story, what did Salt Boy want most of all?

(b) What was Salt Boy's problem in this story?

(c) How did the problem get solved?

"Ideal answers" were created for each of the probe questions. Students' responses were scored on the basis of how many pieces of the "ideal answer" they contained. For example, the "ideal answer" for the question, "What was Salt Boy's problem in this story?" was "His father wouldn't teach him how to rope the black horse until his years were more. Scoring examples are as follows:

2 points - His father wouldn't let him because he was too young.
1 point - You have to be older.
1 point - His father wouldn't let him.
1 point - He was too young.
0 points - He got mixed up with the sheep.

Students' story understanding was also assessed using their responses to written questions--referred to as the daily measures for the instructed stories, and written answers for the uninstructed stories. Again, as with the probe questions, "ideal answers" were created for each question, and the students' written answers were compared to these. A 3-point scale was used for scoring the students' responses: 2 points for a correct response, 1 point for a partially correct response, and no points for an incorrect response. The following are scoring examples for the question, "What happened after Salt Boy asked his father to teach him how to rope the black horse?"

2 points - The father didn't answer.
1 point - His father said he was too little.
1 point - He said no.
0 points - He roped it.

Interrater reliability for each of the dependent measures was as follows: .92 for idea units, .86 for the holistic score, .93 for the probe questions, .93 for written answers, .94 for the daily measures, and .85 for central story elements.

Results

Data Analysis

A between-subjects experimental design was used to determine the effect of the single nominal variable, treatment, on selected dependent measures. There were two levels of treatment--the experimental (Internal States) condition and the control (External Events) condition. Analysis of covariance (ANCOVA) was the method selected for data analysis, with either the pretest or the reading comprehension measure functioning as the single covariate. The two sets of posttests (immediate and delayed) for both the quantitative (idea units and written questions) and the qualitative (holistic score and probe questions) dependent measures were each analyzed in a similar step-by-step regression procedure--which included checking for the following interactions: covariate-by-treatment, order-by-treatment, and class-by-treatment. Alpha level was set at .05.

Preliminary analyses of variance (ANOVAS) were also conducted to determine if there were any significant covariate-by-treatment or covariate-by-class interactions. There were none.
As it turned out, two subjects (one from each treatment condition) scored quite low on the reading comprehension measure; therefore, it was decided to exclude them from the analyses, thus creating an *N* of 46.

The unit of analysis for this study is the individual student. Because instruction was conducted in a group setting, some researchers might argue that the group and not the individual should be the unit

of analysis (Raudenbush & Bryk, 1988). The focus of this study, however, is on the effects of *group* instruction on *individual* student's reading performance when confronting new uninstructed stories on an individual basis. In addition, dependent measures were collected for each student individually.

Main Dependent Measures

Tables 1 through 4 contain the unadjusted means and the adjusted means, by treatment group, for the pretests, posttests, and the delayed posttests for the four different measures analyzed: idea units, holistic score, probe questions, and written answers.

[Insert Tables 1-4 about here.]

It should be noted that the means on the reading comprehension measure are the same for each of the two treatment groups. This coincidental occurrence should be kept in mind when comparing the unadjusted and the adjusted means of the dependent measures that were analyzed using reading comprehension as the covariate. The result in this situation is, of course, that the adjusted means and the unadjusted means are the same.

The ANCOVA regression analyses for the four story information dependent measures--idea units posttest, $F(1,43) = 0.68, p > .05$, MSe = 10.23; idea units delayed posttest, $F(1,43) = 2.67, p > .05$, MSe = 7.39; written answers posttest, $F(1,43) = 1.13, p > .05$, MSe = 4.17; and written answers delayed posttest, $F(1,43) = 0.28. p > .05$, MSe = 5.00--revealed no significant differences between treatment groups. Moreover, even when separate analyses were conducted for each of the three written question subgroups, there were still no significant treatment effects.

Of the four ANCOVA regression analyses involving the four story quality dependent measures, on the other hand, three of them--the analyses for the holistic score delayed posttest, $F(1,43) = 4.61, p < .05$, MSe = 0.96; probe questions posttest, $F(1,43) = 7.86, p < .05$, MSe = 2.47; and probe questions delayed posttest, $F(1,43) = 9.42^{*}, p < .05$, MSe = 2.40 (*story order-by-treatment interaction present)--were found to be significant.

An inspection of the unadjusted means for each of these analyses reveals that the differences are in favor of the Internal States group for each of them: (a) for the holistic score delayed posttest, *M* Internal = 3.78 and *M* External = 3.17 (see Table 2); (b) for the probe questions posttest, *M* Internal = 7.65 and *M* External = 5.61 (see Table 3); and (c) for the probe questions delayed posttest, *M* Internal = 8.26 and *M* External = 6.09 (see Table 3).

When the results of the analyses for the four main dependent measures are examined more closely, they present a number of interesting patterns: (a) transfer effects for the Internal States treatment were found in three out of the four story quality analyses; (b) two of these three significant results involved delayed posttest measures, which suggests that these treatment effects tend to persist over time; (c) story quality measures were clearly more sensitive to treatment differences than were story information measures; and (d) as in earlier related studies, probe questions proved to be more sensitive to treatment differences than quantity-based retellings.

Post Hoc Analyses

Goal, problem, and resolution questions. A series of post hoc analyses were conducted separately for each of the three oral probe questions to determine if the story order-by-treatment interaction found in the probe questions delayed posttest analysis might be due to an interaction with just one of the questions. If that were the case, then it would be possible to determine whether there were significant main effects for analyses involving the other two questions. Altogether, six analyses were conducted,

BEST COPY AVAILABLE

one for each of the three questions (goal, problem, and resolution) at both the posttest and the delayed posttest periods. The descriptive statistics for each of these measures can be found in Table 5.

[Insert Table 5 about here.]

As it turned out the only significant story order-by-treatment interactions for all six analyses were found in the two analyses involving the goal question--with marginal significance for the goal question posttest (p = .056) and clear significance for the goal question delayed posttest (p = .014). There were no significant interactions for the four analyses involving the problem and resolution questions.

For both problem questions analyses, there were significant treatment main effects found in favor of the Internal States group: (a) M Internal = 2.61 and M External = 1.87 for the posttest problem question, $F(1,43) = 4.52, p < .05$, MSe = 1.18; and (b) M Internal = 2.91 and M External = 1.83 for the delayed posttest problem question, $F(1,43) = 7.83, p < .05$, MSe = 1.32. (See Table 5 for descriptive measures.)

Of the four analyses involving the goal and resolution questions, two of them produced near-significant results also in favor of the Internal States group. For the goal question posttest, treatment effects were significant, $F(1,33) = 4.30, p < .05$, MSe = 1.14, but, as mentioned, there was also a near significant order-by-treatment interaction, $F(10,33) = 2.07, p = .056$, MSe = 1.14. For the resolution delayed posttest analysis, there was a near-significant effect for treatment, $F(1,43) = 3.52, p = .067$, MSe = 1.34, also favoring the Internal States group.

Central story elements. The final set of post hoc analyses involved a measure known as central story elements. This measure was created by applying the probe questions scoring rules to the retellings to determine how well the students' retellings described the key story grammar elements of goal, problem, and resolution.

ANCOVA regression analyses for the central story elements revealed no significant treatment effect at the posttest period, $F(1,43) = 2.07, p > .05$, MSe = 2.64, but at the delayed posttest period there was a significant effect, $F(1,43) = 4.96, p < .05$, MSe = 2.36, favoring the Internal States group, M Internal = 8.09 and M External = 6.35.

Daily Measures

As will be recalled, daily measures were taken on each of the nine instructed stories. They were scored in the same way that the responses were scored for the written answers measure.

The primary function of these questions was to monitor instructional effects. As expected, students from each treatment condition scored better on those questions taken from their own instruction, as can be verified by scanning the means for the respective treatment groups in Table 6.

[Insert Table 6 about here.]

Results for the subsets of four detail questions for each of the nine stories were not as clear cut; however, there is an interesting shift in relative proficiency over time on these questions, as a quick examination of the means for these questions in Table 6 reveals. While the External Events group performed better on the set of four detail questions for the first two stories, the Internal States group scored higher on these questions for the final four stories.

To determine whether any of these differences were significant, and, therefore, whether the shift in relative proficiency on these questions was more than just a trend, t-tests were conducted that compared treatment group means on the detail questions for the first two and the last two instructed stories. Two

out of four of these differences between means proved to be significant--for the first and the seventh stories. Students in the External Events group scored significantly higher on the detail questions for the first story (M External = 6.43), than students in the Internal States group, (M Internal = 5.58), $t(21) = 1.90, p < .05$ (for a one-tailed test). For the seventh story, however, the situation reversed itself as students for the Internal States group significantly outscored (M Internal = 5.25) the students in the External Events group on this measure (M External = 3.74), $t(20) = 2.33, p < .05$.

To summarize the post hoc analyses and the daily measures, then, additional evidence has been provided by these analyses demonstrating the relative efficacy of the Internal States instructional treatment in helping students better understand stories. Students in the Internal States group clearly outperformed their External Events counterparts in their responses to the problem probe question at both of the posttesting periods. In addition, treatment effects favoring the Internal States treatment condition were found for the central story elements measure at the delayed posttest. Finally, the daily measures analyses indicate that the Internal States treatment might also improve students' ability to recall minor story details.

Summary of Results

The analyses conducted for this study fall into three major categories: (a) the main dependent measures, (b) the post hoc analyses, and (c) the daily measures. For each of these groups, significant results were found in favor of the Internal States treatment on some, but not all, of the analyses. None of the results favored the External Events treatment.

For the quantitative main dependent measures--the idea units and written questions--none of the four analyses conducted produced significant results. On the other hand, for the qualitative main dependent measures--the holistic score and probe questions--three out of four of the analyses produced results that favored the Internal States treatment, although one of them involved an interaction.

For the post hoc analyses--those follow-up analyses for the goal, problem, and resolution questions as well as for the central story elements measure--fully half (four of eight) of the analyses conducted proved to be significant, again in favor of the Internal States group, although one of these significant results involved a significant interaction.

For the daily measures, there were two patterns worth noting. The first was that across all nine instructed stories, students consistently performed better on those test questions taken from their instructional condition (see Table 6). The second pattern, suggested by a visual inspection of Table 6 and supported by the results of four t-tests, is a trend for the Internal States group to gradually improve its performance on the detail questions when compared to the External Events group.

Taken as a whole, then, these three sets of analyses suggest that the Internal States treatment is a more effective story instruction strategy than the External Events treatment.

Discussion and Conclusions

Story Quality vs. Story Information Measures

The Internal States group outperformed the External Events group on the qualitative but not on the quantitative main dependent measures. In addition, the Internal States group also performed better on two of the measures examined in the post hoc analyses. These measures--the probe questions and central story elements--can also be considered to be story quality measures in that they each involve the application of a story quality scoring system, the probe question scoring rules, to student responses.

The superior performance of the Internal States group on the story quality but not the story information measures can perhaps be understood by considering the relationships between the two instructional treatments to the two different sets of dependent measures. The External Events treatment, as previously mentioned, is based on a causal inference schema and the instructional questions used with it focus on *what* happens in the story--the story events and their relative order. Exposure to so many questions that reinforce only the temporal and sequential connections between story events might serve to obscure students' awareness of the psychological connections that bind these events together.

The Internal States treatment, by contrast, is based on what McConaughy (1985) terms a social inference schema and, as such, emphasizes not only *what* happens in a story but *why* it happens. In this treatment the type of instructional questions used encourages students to explore the story characters' psychological states as well as the connections between these states and the story events that accompany them.

Probe Questions

It was in the students' responses to the probe questions that instructional differences showed up most clearly, at least for the immediate posttests. Here the Internal States group demonstrated clear superiority in their ability to handle these questions, with an advantage of three fourths of a standard deviation.

The probe questions used in this study were designed to measure subjects' understanding of the central goal structure features of stories: the main characters' major goal, the story's main problem, and the resolution to that problem. Necessarily, accurate responses to these probe questions requires an understanding of the story characters' thoughts, motives, and feelings--in other words, their internal states.

The results for the problem question were the most clear-cut of the probe question analyses. At both the posttest and the delayed posttest time periods, the Internal States group significantly (and clearly--with no interactions involved) outscored the External Events group. Of the three oral probe questions employed in this study--the goal, problem, and resolution question--it is the problem question that most clearly taps the reader's knowledge of a story's central goal structure. Most popular children's stories, and specifically the stories selected for this study, possess a clearly delineated problem that the main character attempts to solve. A story's plot structure is typically organized around this problem and the attempts to resolve it. A knowledge of this problem, as well as the ability to describe it, provides strong evidence that a reader has grasped the story's main point and is also likely to understand the motivations for the characters' actions as well.

Instructional Differences

A closer examination of the differences in instruction provided to each of the treatment groups may serve to clarify the reasons why the Internal States group outperformed the External Events group on the problem question as well as on several other of the story quality measures. As previously mentioned, each treatment group had its own instructional focus. Instruction for the external Events group centered on reviewing the order of related story events, while instruction for the Internal States group focused on clarifying the reasons behind the story characters' actions and feelings.

The story questions for the External Events groups were designed to give the students in those groups practice in linking related story events--for example "What did Mary do after checking to see if Ataline was awake?" or "What happened after Petronella asked if there were anything she could do to help the old man?" It should be remembered that these were *observable* story events. The reasons for the occurrence of these events, as well as the story characters' underlying thoughts and feelings, were

purposely *not* probed for either in the initial questioning or in the ensuing discussion. As a result, few *why* questions were asked of the students in this treatment condition.

The instructional questions for the Internal States groups, on the other hand, were intended to highlight a number of the story characters' internal states--their feelings, the reasons for their feelings, their dispositions, and the reasons for their actions. Examples of questions asked in the Internal States condition are "Why did Petronella release the enchanter from the ring around his body?" or "How did Mary feel when she heard a noise in the woods? Why?"

The cumulative effect of exposure to so many *why* questions of this type, along with the accompanying discussion, apparently enabled the Internal States students to incorporate this sort of critical approach into their own independent reading. Trying to determine the purposes of story characters' actions, as well as their emotional responses to story events, can provide readers with an effective strategy for figuring out a story's underlying problem-goal structure. Consider this excerpt from a transcript of one of the discussions of the Internal States reading groups.

T: How do you think Mandy felt when she opened her present from her grandmother and found out it was a dress, a hat and a purse?

C: Probably surprised.

T: Surprised. OK. Cindy?

C: Sad?

T: Why do you think sad?

C: Cause she usually...she probably was used to wearing pants and stuff she, uhm, her grandmother brought her a dress.

T: John, what do you think?

C: Mad.

T: Why do you think mad?

C: Cause she's used to wearing jeans.

T: Cause she's used to wearing jeans. OK. Sarah?

C: Unhappy, and again, why?

C: Cause she doesn't like dresses.

T: Doesn't like dresses. Anything different? Karen, anything different?

C: She, it said in the story, maybe it's cowboy clothes.

T: Oh, so what does that tell you?

C: She's a tomboy.

T: OK. Good answers.

Several of the students in this reading group were clearly making connections between Mandy's feelings of disappointment and the reasons underlying those feelings--that she was more interested in wearing jeans than dresses!

Instruction for the External Events group, on the other hand, merely attempted to link up adjacent events into short sequential chains without exploring whether there was anything beyond a temporal connection tying these events together. The possibility of causal connections between events, for example, was not investigated, and of course, questions about characters' motivations or feelings were carefully avoided.

The relentless pursuit of "the one correct answer," which characterized much of the instruction for the External Events group, is illustrated in the following example:

T: What happened right before Mandy got mad at everyone? Mandy got mad at everyone. What happened right before that?

C: She went to her room?

T: Right before then. She got mad. What happened right before she got mad?

C: Mandy was sent outside.

T: She was sent outside. And what else right before that?

C: She got into a pirate ship.

T: She got into a pirate ship, yeah.

Internal States Questions as a Type of Inference Question

As can be seen from the transcript excerpts, students in the Internal States group were asked far more *why* questions than were their counterparts in the External Events group. It could be argued that the greater efficacy of the Internal States treatment was due simply to the fact that students in the Internal States group were asked *more* inference questions. Obviously it was not the intent of this study simply to determine whether instruction based on inference questions benefited story comprehension; those studies have already been carried out (e.g., Hansen, 1981; Hansen & Pearson, 1983; Sundbye, 1987). Instead, the goal of this study was to determine whether a particular type of inference question--specifically, one that clarifies the relationships between characters' actions and their internal states--would have a stronger impact on students' narrative comprehension than would a broader, less-focused collection such as those used in previous related studies (e.g., Hansen, 1981; Hansen & Pearson, 1983; Sundbye, 1987).

Limitations

One limitation in the study design, which became apparent shortly after the initial pretest measures had been taken, involved the "luck-of-the-draw" randomization procedure used in assigning each of the three uninstructed stories as either a pretest, posttest or delayed posttest. As it turned out, students' scores on the two dependent measures for which there were significant results--holistic score probe questions--were consistently lower for one of these stories, "The Glittering Cloud," than for the other two. This outcome, coupled with the fact that more of the Internal States students received this story

BEST COPY AVAILABLE

as a pretest than the External Events students, produced a situation in which students in the Internal States group could have been showing greater posttest gains merely as a result of which story they drew as a pretest. A story order-by-treatment interaction was included in each of the regression analyses to determine if any of these differences might be significant. As previously mentioned, only the probe question analyses revealed an order-by-treatment interaction, however, and a series of post hoc analyses pinpointed the interaction as occurring only in the goal question analyses.

Nevertheless, a counterbalanced design for assigning story order would have prevented these problems. Story order would still be considered a "nuisance" variable and would not be included in the analysis.

Another limitation of this study, of course, is that it is experimenter-conducted research. Any biases which the experimenter might possess could show up in differential treatment for the instructional groups. Future instructional studies in this area should make use of unbiased instructors with no vested interest in the outcomes. Classroom teachers would, of course, be likely candidates for this role.

One problem with the analyses for this study involves the possible presence of Type 1 Error (mistakenly finding significant results by chance), although it does not appear to be a serious threat. With 7 out of 16 regression analyses yielding significant results, and all in the same direction, the likelihood of Type 1 Error being accountable for a more than one of these findings is slight.

With regard to the failure to find any significant aptitude-by-treatment interactions in this study, the subjects' limited range of ability at the high end of the scale might account for this result. Often in instructional studies testing methods for improving students' narrative comprehension, it is the lower ability readers who are most sensitive to the treatment provided (Beck et al., 1982; Hansen & Pearson, 1983). In this study, as will be recalled, the subjects, as a group, scored at the 75th percentile on the SRA Survey of Basic Skills. Additionally, the two lowest scorers on this measure were dropped from the analyses. Future investigations in this area should include subjects representing the full range of reading ability in order to increase the likelihood of detecting possible aptitude-by-treatment interactions.

Contributions of this Study

This study has made several contribution toward clarifying the connections between instruction that promotes readers' knowledge of character internal states and overall story comprehension. Of these, the following three are perhaps the most significant:

1. Unlike the Carnine et al. (1982) and the Sundbye (1987) studies, which both used one-on-one instruction, the instruction for this study was delivered in group settings, just as it would be in a regular classroom. Consequently, the results of this study are more easily generalizable to the typical classroom situation, where group instruction is the norm.

2. As was intended, the instructional package for the Internal States group has a fairly simple design, consisting of a series of easily-constructed instructional questions along with a repeated strategy. The reason for keeping the design simple is rather obvious: if the instructional package proved to be effective, then the likelihood of its being adopted, whether by basal publishers or classroom teachers, would be greater. Long, complicated plans for instruction are not only difficult to describe but are also unlikely to be implemented with fidelity.

3. Similar to a study conducted by Carnine et al. (1982), which also investigated the effects of a relatively simple instructional procedure on intermediate students' narrative comprehension, this study used new uninstructed stories for the dependent measures. Moreover, as with the Carnine et al. study, transfer of instructional effects was also demonstrated for this study.

As educational researchers, our long-range goals for instructional studies should be to provide teachers, and ultimately students, with strategies and techniques that students can use on their own when reading new material. The results of studies such as this one, which investigate the effects of instruction on new uninstructed texts, have direct implications for regular classroom instruction. Using the kinds of questions developed for the Internal States group in this study, classroom teachers can easily add to or modify the sets of questions which are already included with their basal selections. In so doing, they will help their students clarify the links between story characters' actions and their internal states.

The value of the instructional technique explored in this study is that it provides primary students with assistance in making inferences about story characters' internal states. When left to their own devices, primary students tend not to make these important inferences on their own (Stein & Glenn, 1979; Wallace, 1984). They need help. Using the type of instruction described in this study, teachers can provide their students with the help they need for making inferences about story characters' feelings and plans. Additionally, as a result of this sort of instructional help, students will also be better able to make these sorts of inferences on their own.

In conclusion, then, the results of this study suggest that providing young readers with an instructional framework for clarifying story characters' plans and feelings can increase their ability for making inferences about characters' internal states, and as a result, improve their overall story comprehension.

References

Beck, I. L., Omanson, R. C., & McKeown, M. G. (1982). An instructional redesign of reading lessons: Effects on comprehension. *Reading Research Quarterly, 4*, 462-481.

Berndt, T. J., & Berndt, E. G. (1975). Children's use of motives and intentionality in person perception and moral judgment. *Child Development, 46*, 904-912.

Bruce, B. (1984). A new point of view on children's stories. In R. C. Anderson, J. Osborn, & R. J. Tierney (Eds.), *Learning to read in American schools: Basal readers and content texts*. Hillsdale, NJ: Erlbaum.

Carnine, D., Stevens, C., Clements, J., & Kameenui, E. J. (1982). Effects of facilitative questions and practice on intermediate students' understanding of character motives. *Journal of Reading Behavior, 14*, 179-190.

Cleary, B. (1985). Payday. In V. Anderson, C. Bereiter, & T. G. Anderson (Eds.), *Burning bright: The headway program (Level H)* (pp. 243-247). Lasalle, IL: Open Court.

Comas, J. (1987). Award winning children's literature found in basal textbook readers. (Doctoral dissertation, Indiana University, 1987). *Dissertation Abstracts International, 49*, 744A.

Dunning, D. (1990). The effects of instruction clarifying story characters' internal states on primary students' story comprehension. (Doctoral dissertation, University of Illinois, 1990). *Dissertation Abstracts International, 51*, 804A.

Fielding, L. G., Anderson, R. C., & Pearson, P. D. (January, 1990). *How discussion questions influence children's story understanding* (Tech. Rep. No. 490). Urbana-Champaign: University of Illinois, Center for the Study of Reading.

Flapan, D. (1968). *Children's understanding of social interaction*. New York: Teachers College Press.

Grueneich, R., & Trabasso, T. (1981). The story as a social environment: Children's comprehension and evaluation of intentions and consequences. In H. H. Harvey (Ed.), *Cognition, social behavior, and the environment* (pp. 265- 287). Hillsdale, NJ: Erlbaum.

Guszak, F. J. (1967). Teacher questioning and reading. *The Reading Teacher, 21*, 227-234.

Hall, W. S., & Nagy, W. E. (1981). Cultural differences in communication. *New York University Education Quarterly, 13*, 16-22.

Hall, W. S., Nagy, W. E., & Nottenburg, G. (1981). *Situational variation in the use of internal state words* (Tech. Rep. No. 212). Urbana-Champaign: University of Illinois, Center for the Study of Reading.

Hansen, J. (1981). The effects of inference training and practice on young children's reading comprehension. *Reading Research Quarterly, 16*, 391-417.

Hansen, J., & Pearson, P. D. (1983). An instructional study: Improving the inferential comprehension of good and poor fourth-grade readers. *Journal of Educational Psychology, 75*, 821-829.

Lichtenstein, E. H., & Brewer, W. F. (1980). Memory for goal-directed events. *Cognitive Psychology, 12,* 412-445.

Liebling, C. R. (1986). *Inside view and character plans in original stories and their basal reader adaptations* (Tech. Rep. No. 397). Urbana-Champaign: University of Illinois, Center for the Study of Reading.

McConaughy, S. H. (1985). Good and poor readers' comprehension of story structure across different input and output modalities. *Reading Research Quarterly, 20,* 219-232.

McConaughy, S. H., Fitzhenry-Coor, I., & Howell, D. (1983). Developmental differences in story schemata. In K. E. Nelson (Ed.), *Children's Language* (Vol. 4, pp. 385-421). Hillsdale, NJ: Lawrence Erlbaum.

O'Flahavan, J.F., Hartman, D. K., & Pearson, P. D. (1988). Teacher questioning and feedback practices: A twenty-year retrospective. In J. H. Readance & R. S. Baldwin (Eds.), *Dialogues in literacy research: Thirty-seventh yearbook of the National Reading Conference* (pp. 183-208). Tucson, AZ: National Reading Conference.

Perrine, M. (1978). Salt boy. In R. B. Ruddell & R. Crews (Eds.), *Person to person*. Boston: Allyn & Bacon.

Raudenbush, S. W., & Bryk, A. S. (1988). Methodological advances in the effects of schools and classrooms on student learning. In E. Z. Rothkopf (Ed.), *Review of research in education* (Vol. 15, pp. 423-475). Washington, DC: American Educational Research Association.

Shake, M. C., & Allington, R. L. (1985). Where do teachers' questions come from? *The Reading Teacher, 38,* 432-438.

Shannon, P., Kameenui, E. J., & Baumann, J. F. (1988). An investigation of children's ability to comprehend character motives. *American Educational Research Journal, 25,* 441-462.

Stein, N. L., & Glenn, C. G. (1979). An analysis of story comprehension in elementary school children. In R. O. Freedle (Ed.), *Advances in discourse processes: Vol. 2. New directions in discourse processing* (pp. 53-120). Norwood, NJ: Ablex.

Sundbye, N. (1987). Text explicitness and inferential questioning: Effects on story understanding. *Reading Research Quarterly, 22,* 82-97.

Trabasso, T., Secco, T., & van den Broek, P. (1984). Causal cohesion and story coherence. In H. Mandl, N. L. Stein, & T. Trabasso (Eds.), *Learning and comprehension of text* (pp. 83-111). Hillsdale, NJ: Erlbaum.

Wallace, R. R. (1984). The ability of second- and third-grade students to draw inferences after reading selections of prose. *Dissertation Abstracts International, 45,* 3597A-3598A.

Wilder, L. I. (1985). The glittering cloud. In V. Anderson, C. Bereiter, & T. G. Anderson (Eds.), *Burning bright: The headway program (Level H).* Lasalle, IL: Open Court.

Wixson, K. (1983). Postreading question-answer interactions and children's learning from text. *Journal of Educational Psychology, 30*, 413-423.

Yolen, J. (1978). Greyling. In R. B. Ruddell & R. Crews (Eds.), *Person to person*. Boston: Allyn & Bacon.

Table 1

Means and Standard Deviations of the Number of Idea Units in Free Oral Recall by Instructional Treatment Group

Treatment group	Pretest	Post-test[a]	Post-test[b]	Delayed posttest[a]	Delayed posttest[b]
External events (n = 23)	15.26 (11.51)	19.09 (12.71)	19.90	17.57 (9.97)	19.18
Internal states (n = 23)	21.75 (13.87)	24.61 (11.12)	23.79	23.65 (10.77)	22.04

Note. N = 46. Standard deviations in parentheses.

[a]Unadjusted means. [b]Means adjusted for scores on the pretest.

Table 2

Means and Standard Deviations of the Holistic Score for Free Oral Recall by Instructional Treatment Group

Treatment group	Pretest	Post-test[a]	Post-test[b]	Delayed posttest[a]	Delayed posttest[c]
External events (n = 23)	3.04 (1.52)	3.26 (1.18)	3.37	3.17 (1.19)	3.17
Internal states (n = 23)	3.56 (1.38)	3.91 (1.31)	3.80	3.78 (1.28)	3.78

Note. N = 46. Standard deviations in parentheses.

[a]Unadjusted means. [b]Means adjusted for scores on the pretest.

[c]Means adjusted for scores on Reading Comprehension.

Table 3

Means and Standard Deviations of the Probe Questions for Oral Probed Recall by Instructional Treatment Group

Treatment group	Pretest	Posttest[a]	Delayed posttest[a]
External events (n = 23)	7.57 (3.12)	5.61 (2.39)	6.09 (2.98)
Internal states (n = 23)	7.05 (3.06)	7.65 (2.96)	8.26 (3.17)

Note. N = 46. Standard deviations in parentheses.

[a]Only unadjusted means are reported in this table. Because Reading Comprehension was used as the covariate in the analysis of this dependent measure, the adjusted means are identical to the unadjusted means.

Table 4

Means and Standard Deviations of the Written Answers for Written Probed Recall by Instructional Treatment Group

Treatment group	Pretest	Posttest[a]	Delayed posttest[a]
External events (n = 23)	20.11 (5.87)	17.83 (5.04)	18.26 (4.97)
Internal states (n = 23)	18.88 (5.37)	19.13 (5.16)	17.48 (5.77)

Note. N = 46. Standard deviations in parentheses. Because Reading Comprehension was used as the covariate in the analysis of this dependent measure, the adjusted means are identical to the unadjusted means.

[a]Only unadjusted means are reported in this table.

Table 5

Means and Standard Deviations of Responses to Goal, Problem and Resolution Probe Questions by Instructional Treatment Group

Treatment group	Pretest	Posttest[a]	Delayed posttest[a]
A. For the goal probe question			
External events (n = 23)	3.30 *(1.22)*	2.57 *(1.44)*	2.74 *(1.54)*
Internal states (n = 23)	2.92 (1.31)	3.26 (1.05)	3.09 (1.35)
B. For the problem probe question			
External events (n = 23)	2.48 (1.53)	1.87 (1.18)	1.83 (1.47)
Internal states (n = 23)	2.34 (1.20)	2.61 (1.34)	2.91 (1.20)
C. For the resolution probe question			
External events (n = 23)	1.78 (1.38)	1.17 (1.19)	1.52 (1.38)
Internal states (n = 23)	1.80 (1.23)	1.78 (1.51)	2.26 (1.39)

Note. N = 46. Standard deviations in parentheses; range = 0-4 points for each of the questions. Because Reading Comprehension was used as the covariate in the analysis of this dependent measure, the adjusted means are identical to the unadjusted means.

[a]Only unadjusted means are reported in this table.

Table 6

Means and Standard Deviations of the Written Probed Recall for the Nine Instructed Stories for Three Subsets of Written Questions, by Instructional Treatment Group

Story: In order of presentation								
1	2	3	4	5	6	7	8	9
Subset of four questions taken from the Internal States instruction								
ISTRG								
7.33	5.54	7.22	6.31	7.13	7.13	6.70	4.10	5.43
(.96)	(1.79)	(1.09)	(1.45)	(1.23)	(1.22)	(1.53)	(1.70)	(2.00)
(n = 24)	(n = 24)	(n = 23)	(n = 16)	(n = 24)	(n = 23)	(n = 20)	(n = 21)	(n = 23)
EETRG								
6.38	5.00	4.73	5.79	6.61	5.08	5.57	3.61	4.29
(1.88)	(2.39)	(2.35)	(2.08)	(1.50)	(2.38)	(1.75)	(1.75)	(1.95)
(n = 21)	(n = 22)	(n = 22)	(n = 14)	(n = 23)	(n = 24)	(n = 23)	(n = 23)	(n = 21)
Subset of four questions taken from the External Events instruction								
ISTRG								
4.88	3.25	3.39	4.82	4.38	3.78	3.85	4.67	3.91
(1.23)	(1.84)	(1.80)	(1.68)	(2.04)	(1.78)	(1.73)	(1.93)	(2.21)
EETRG								
6.48	4.77	4.59	5.21	4.57	4.79	4.13	4.96	5.81
(1.91)	(2.47)	(1.97)	(1.93)	(2.17)	(2.17)	(1.60)	(2.01)	(1.17)
Subset of four detail questions not asked in either instructional condition								
ISTRG								
5.58	3.71	5.09	5.69	4.58	3.96	5.25	3.24	4.13
(1.64)	(2.42)	(1.98)	(2.39)	(2.02)	(2.50)	(2.24)	(1.76)	(2.46)
EETRG								
6.43	4.18	4.68	5.64	4.61	3.54	3.74	2.43	3.76
(1.36)	(2.34)	(2.08)	(2.44)	(1.67)	(2.08)	(1.98)	(2.11)	(2.14)

Note. Standard deviations in parentheses. ISTRG = Internal states treatment group; EETRG = External events treatment group; maximum score = 8.